

REMARKS

The Official Action mailed August 1, 2006 has been carefully considered. Claims 1-3, 5-14, and 17 are pending in the application and stand rejected. Claims 11 and 12 stand withdrawn. Reconsideration and allowance of the subject application, as amended, are respectfully requested.

Claim Amendments

Claim 1 has been amended to recite: "drying or curing the treated metal wherein a coating consisting essentially of said thiol compound is formed." Support for this amendment may be found in paragraph [0019] which recites in part:

"a metallic object is immersed in a solution containing an alkanethiol dissolved in an organic solvent for a period of time to allow for the surfactant molecules to form a close-packed SAM on the metallic substrate. The metallic object is then dried in air either at room or elevated temperature to drive-off the solvent and consolidate the organic coating."

Claim 1 has also been amended to delete pickled steel sheet and gold, and to make minor clerical corrections. Claim 13 has been similarly amended. Claim 17 has been cancelled. No new matter has been added by these amendments.

Newly added claim 18 recites:

"[a] method of providing corrosion protection for a metal by coating said metal with a thiol compound, comprising the steps of: a. dissolving or dispersing said thiol compound in a solvent and preparing a solution or dispersion, b. treating said metal with said solution or dispersion, c. drying or curing the treated metal, and thereby increasing the corrosion resistance of said metal without using chrome, and wherein said thiol compound has the general formula, $R(CH_2)_nSH$, where R is selected from the group consisting of $(-NH_2)$, $(-COOH)$, $(-COO-)$, $(-OH)$, $(-CONH_2)$, $(-COH)$ and n is in the range of 7 to 21."

Support for this amendment may be found in originally filed claims 1 and 2. Support for the subject matter of new claims 19-23 may be found in originally presented claims 4, 5, 6, 7 and 9. No new matter has been entered by this amendment.

35 USC §112

Claims 1-3 and 5-12 and 17 stand rejected under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as their invention.

Applicants respectfully assert that the amendments to claim 1 as reflected above render these rejections moot.

35 USC §102 and 35 USC §103

Claims 1-3, 5-7, 9-11 and 13 stand rejected under 35 U.S.C. §102(b) as being anticipated by JP 10-001786.

As an initial matter claim 1 has been amended to recite that “a coating consisting essentially of the thiol compound is formed.” Claim 13 has been similarly amended.

JP10-001786 appears to disclose a zinc-group plated steel plate coated with a solution which contains silicic-acid ester and the mineral salt of aluminum forming a chemical-conversion-treatment film which comprises a mercaptide compound which is the reaction product of a thiol compound and a part of said chemical-conversion-treatment film on an upper surface layer. In addition, JP10-001786 describes that the chemical-conversion-treatment film may also include a thiol compound in addition to the mercaptide compound.

However, as the mercaptide and chemical-conversion-treatment film are present in the coatings described in JP10-001786, the reference does not teach or suggest the presently claimed subject matter. Rather, the reference appears to teach against the presently claimed subject matter as one would not gather from the reference that in order to provide corrosion protection a coating may consist essentially of a thiol compound. More specifically, one would believe that the coating must necessarily include silicic-acid ester, which is underscored by the reference as the compound which provides corrosion protection. Paragraph [0009] of the Thomson translation recites:

“[a]lthough the mechanisms of the corrosion-resistant improvement by this chemical-conversion-treatment film is not necessarily clear, in hydrolysis/condensation process of silicic-acid ester, a white-rust suppressibility is obtained by the siloxane bonding, furthermore, compaction of a film is increased by the aluminum in mineral salt, it is thought that corrosion resistance improves.”

Accordingly, one of ordinary skill in the art would believe that silicic acid-ester must necessarily be present in the coating for corrosion protection to be achieved. Therefore, as the

chemical-conversion-treatment film is not present in the presently claimed subject matter, JP10-001786 does not suggest and teaches against the presently claimed subject matter.

Claims 1-3, 7-8 and 10-11 stand rejected under 35 USC §102(b) as being anticipated by JP 57-198269.

The Applicants note that amended claim 1 is directed to hot rolled steel sheet, cold-rolled steel sheet, hot-dipped metallic coated steel sheets, electroplated metallic coated steel sheets, aluminum sheets, aluminum alloy sheets, zinc sheets, and zinc alloy sheets. In addition, as noted in dependent claim 5, the metal may include coatings of one or more layers selected from the group consisting of lead, lead alloy, nickel alloy, zinc, zinc layer, tin and tin alloy. Furthermore, the Examiner correctly recognizes that “‘269 teaches coating by dipping (i.e. immersion for 2 seconds) a partially or wholly silver-plated stainless steel into a octadecylmercaptan solution (RN 2885-00-9) in ethanol or other organic solvents for corrosion protection. The solution is 0.01-5 weight %.” (Emphasis added). The ‘269 reference, however, fails to teach or suggest that metals, other than stainless steel, may be utilized. Nor does the ‘296 reference discuss the use of platings or coatings other than silver. Accordingly, the ‘269 reference fails to teach or suggest the presently claimed invention.

Claims 12, 14 and 17 stand rejected under 35 USC §103 as being unpatentable over 10-001789. Applicants note that claim 12 has been withdrawn and claim 17 has been cancelled. However, as claim 12 depends upon claim 11, which in turn depends on claim 1, the Applicants respectfully assert that both dependent claims, i.e., 11 and 12, are patentable for the reasons given above with respect to claim 1.

Claim 14 also depends from independent claim 13 and therefore, the Applicants respectfully assert that the arguments provided above, with respect to claim 13, are applicable here as well.

Claims 9 and 12 stand rejected under 35 USC §103(a) as being unpatentable over JP 57-198269. While claim 12 has been withdrawn from the present application, it is respectfully

asserted that claim 12 depends indirectly from claim 1 and that dependent claim 12 is patentable for the reasons asserted above with respect to claim 1.

Claim 9 also depends from claim 1 and therefore, once again, the arguments made above with respect to claim 1 also are believed to be applicable with respect to claim 9 and are therefore incorporated herein.

In addition, it is also believed that new claims 18-23 are not taught or suggested by the references discussed herein.

Having dealt with all the objections raised by the Examiner, it is respectfully submitted that the present application, as amended, is in condition for allowance. Early allowance is earnestly solicited. If the Examiner desires personal contact for further disposition of this case, the Examiner is invited to call the undersigned Attorney at 603.668.6560.

In the event there are any fees due, please charge them to our Deposit Account No. 50-2121.

Respectfully submitted,

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